

Bozeman (N.)

ON

Urethrocele, Catarrh, and Ulceration of  
the Bladder in Females,

By NATHAN BOZEMAN, M. D.,

Member of the New York County Medical Society; Member of the New York State Medical Society;  
Fellow of the New York Academy of Medicine; Corresponding Member of the  
Gynaecological Society of Boston, Mass.; Honorary Member of the  
Obstetrical Society of Louisville, Ky., etc.

REPRINTED FROM THE TRANSACTIONS OF THE MEDICAL SOCIETY  
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*Dr J. J. Woodward, with  
the Author's Compliments*  
O N

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## URETHROCELE, CATARRH, AND ULCERATION OF THE BLADDER.

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These three local lesions are intimately related in one morbid state or malady. By insensible degrees urethrocele occasions vesical catarrh, and this terminates in ulceration: thus we find them associated in the same subject. The insidious progress of the malady often baffles the physician's acumen in seizing its distinctive phases, or in assigning to each a beginning and an end. Its cause or causes may escape our ken, and the disease be quite advanced before it is suspected. Urethrocele, its primitive lesion or first manifestation, may have occasioned but little inconvenience for years before surgical aid was sought, and this neglect may have entailed catarrh and ulceration in that pathologic order for which continuity or contiguity of tissues is responsible. At this late period, it is often impossible to trace the relations of cause and effect. Urethral stricture, so formidable to the male bladder, rarely exists in the female, and the absence of the prostate gland might seem to afford an immunity from vesical inflammations; but experience belies this. If the male urethra, by its greater length and lesser calibre, is more exposed to blennorrhagia and its consequences, the female is subjected to the still graver perils of child-birth. In both sexes the morbid results are much the same, but as their causes differ widely by anatomical and physiological peculiarities in each sex, so the treatment must also differ.

An English physician, Sir Charles Mansfield Clarke,\* called attention to an affection of the female urethra, which he designated as "a thickening of the cellular membrane surrounding the urethra throughout its whole extent, accompanied by a varicose state of the vessels of the part." "If," he continues, "the parts are exposed and the patient presses down, the diseased part will be brought into view, putting on the appearance of a tumor, but which is nothing else than a thickening of the urinary passage. On the surface of this thickened part blood-vessels ramify, of a size large enough to admit of

\* On Diseases of Females, vol. 1, p. 295, 1814.

being opened by the point of a lancet. \* \* \* If pressure is made upon the part, the swelling and redness subside for a time, but both return directly upon the pressure being discontinued.

"Sometimes a pouch forms in the posterior part of the urethra in which a few drops of urine lodge, and from which situation it may be pressed out by the finger applied to the part. If a catheter is introduced into the urethra, it may be carried backward to the part where the lodgment of urine is found. Upon this cause depends, perhaps, one of the most troublesome symptoms of the disease, a frequent desire to make water, both in the night and during the day, so as to interfere with the patient's rest."

From this elaborate description, every experienced gynæcologist may recall one or more examples of the lesion termed urethrocele, even though he may have given little attention to it. That its pathological importance has been overlooked, is apparent from the fact that Prof. S. D. Gross, in his treatise, otherwise so complete, upon the urinary organs,\* says nothing of urethrocele. He finds ulceration oftener in the female than in the male bladder.

I cannot fully indorse Dr. Clarke's pathology of urethrocele, nor regard it as easily remediable by the puncture of the varicose veins on its surface, and by astringent injections. Dr. McClintock,† of Dublin, has merely repeated Dr. Clarke's views, and neither of them seem to have apprehended those relations of urethrocele to vesical catarrh and ulceration, which first fixed my attention. I have traced these lesions back to their beginning; watched their progress, and noted how the bladder became compromised.

*Causes.*—Urethrocele may oftenest be traced to contusions of the urethra and urethral portion of the vagina, from impaction of the child's head in the inferior strait, and the abuse of instruments in delivery.

The male organ, by excess of size and too frequent coitus, may prove an exciting cause.

Acute urethritis may act either alone or coinciding with cystitis, traumatic, as from passage of a calculus, etc., etc., blennorrhagic, or catarrhal.

CASE I.—A typical case, traced to chill from exposure to cold, placed under my care, October 22d, 1870, by my friend, Dr. T. C. Fennell, of New York, illustrates the stealthy march of the disease, which compromised the bladder only in the course of the third year.

\* On the Urinary Organs, 1855.

† On Diseases of Women, p. 239, 1868.



Mrs. L., aged twenty-eight, is well formed; has a dark complexion, with brown hair and hazel eyes. She first menstruated at fourteen, then not again until seventeen, and two months after her marriage, her health being then delicate.

She became at once pregnant, and during gestation her lower limbs were swollen. Confined at full term, and ten hours in labor, she had convulsions, lay three days insensible, and did not leave her bed for two months. After this she enjoyed good health and menstruated regularly. Her husband soon died, and for ten years she has been a widow. Her illness dates from the spring of 1868, and from an imprudence not unusual with her, going out of a warm room, and standing upon the cold side-walk until chilled through. She then suddenly experienced an urging to micturate, and felt much scalding in voiding the urine. The need of micturition now returned every quarter of an hour or so, and this urging and scalding continued severe for several days. It has never entirely disappeared, and she has had to rise a dozen times or oftener in the night, passing only a few table-spoonfuls of water each time. This has always been worse at her periods, also from acid drinks, and certain vegetables, especially onions, always cause much scalding of the urethra. This is accompanied by a sense of fullness or tension at the vaginal orifice, which increases until the call to urinate becomes irresistible. She has scarcely any rest day or night. The water is not expelled in a stream, but merely wells up from the urethral orifice in a broken column, and runs down upon the external parts.

In the spring of 1870, her general health was sensibly impaired, menstruation was scanty and painful. She had constant pressure at the neck of the bladder, and bearing down when she sat on the vessel. This also extended to the rectum. Exacerbations followed every imprudence in diet, and were provoked by standing, by walking, or by repressing the call to micturate.

She now observed a tough ropy mucus adhere to the urinal, sometimes a gritty brick-dust sediment, and even a little blood. These bad turns would last five or six days, with tenesmus that exhausted her strength.

During several months she submitted to injections of a solution of nitrate of silver into the bladder. These were very painful and gave no relief. Such was her condition when she applied to me. She had lost, she said, about fifteen pounds in weight.

Examination revealed a prolapsus of the urethrovaginal septum, between the nymphæ and labia, in a tumor as large as a pullett's egg,

which rested on the perineum, filling up the ostium vaginae. It was soft, with transverse pletes, and somewhat congested on its surface. It could easily be pushed up into the vagina by the finger, but on removing this, would drop down as before, and become prominent when the patient rose to her feet. Touch revealed a contracted vaginal canal and anteverted womb. A fibrous growth, the size of an almond, and rather sensitive to pressure, occupied the anterior wall just opposite the internal os. Both the neck and body of the womb were considerably enlarged. An elastic catheter, No. 8, in exploring the urethra, met obstructions at its superior wall, and was deflected downwards into a curve before passing into the bladder, which was morbidly sensitive. A female sound of the same caliber, with a very light curve, encountered the obstruction, and could not be passed into the bladder without severe pain. On withdrawing its beak to a point outside the mouth of the bladder, and raising the outer end perpendicular to the pubes, the beak was made to sweep down in a curve until opposite the most dependent point of the tumor outside the vagina, where the point of the finger detected it. About an inch of the sound now occupying the urethra represented the length of its anterior and inferior surface, extending upwards and a little backward from the bottom of the tumor to the meatus. The upper portion of the urethra measured backward and a little upward about an inch and half from the bottom of the tumor to the orifice of the bladder. This portion of the urethra was also much dilated.

Thus, the whole inferior surface of the urethra formed an angle of about eighty degrees, the superior wall curving deeply downward to meet the two extremities of the legs, as the apex of the angle corresponded to the lowest point of the urethral tumor. The index finger, flexed at the second joint to the required angle, may represent the general direction of the urethra; the first two phalanges making the posterior and inferior leg, and the third, the anterior and inferior, while the knuckle is the apex of the angle corresponding to the most dependent part of the tumor.

The patient, upon changing from the recumbent to the erect posture, would naturally alter the precited directions of the urethra, as regards what now becomes the perpendicular axis of the body. The lower portion is directed forward and upward, and the other upward and backward, with the apex of the angle still far below the outer urethral orifice. The gravitation of the urine in these changes of direction has a bearing on the cause and effects of urethrocele. The urine was acid and contained pus corpuscles.



I will now cite a case of urethrocele with confirmed catarrh of the bladder, after eight years' duration, as I observed it in New Orleans, but a few weeks before the patients's death.

CASE II.—Mrs. B., aged 40, of nervo-sanguine temperament, with auburn hair and fair complexion, sent for me April 14th, 1861. She stated that her troubles of the bladder had commenced in the spring of '53, her general health up to that time having been good. Her youngest child was then several years old. Suddenly, and without her being able to assign a cause for it, she was seized with an urging to micturate, attended with a scalding along the urethra, which returned every few minutes, and was but partially relieved by passing water, the mouth of the vagina remaining the seat of an uneasy sensation. These attacks would be severe only for a few days at first, then abate, leaving her comparatively comfortable, though never quite relieved of smarting along the urethra, when urine was voided. Imprudences in exercise and diet provoked paroxysms more frequent and of greater duration, until at last there was no sensible abatement of the symptoms, but the same incessant gnawing and distress at the ostium vaginæ and in the urethra. She now began to feel a fullness at the mouth of the vagina, especially when she would sit upon the vessel, and every effort to micturate was attended with straining. Soon the urine became thick and ropy, and would scald and irritate the external parts as it ran down upon them. After standing, it became strongly offensive and sometimes deposited a brick-dust sediment.

Coitus had been for years excessively painful, yet the husband had brutally insisted on his marital rights until within a few months before I saw the case. I have never witnessed such intense agony, in the habitual state of a patient still able to keep her feet. Without help she still attempted to do the work of her family. Emaciated, and with features contracted by pain, while answering my questions, she could neither sit nor stand still, but walked the floor, wringing her hands and crying in a wild way. For several months, she said, her sufferings had permitted sleep but a few minutes at a time. The scalding and straining to pass a spoonful or two of urine sometimes exhausted her so that she would fall upon the floor. The thick and ropy deposit seen on the bottom of the vessel when the urine would stand for a while, had been nearly constant for a year past, and streaks of blood sometimes appeared in it. I found great masses of tenacious muco-pus of strong smell and dirty drab color. The urine itself showed a strong alkaline reaction.

On examination, I found the urethral portion of the vagina forming a somewhat curved cylindrical tumor between the nymphæ, and with permanent rugæ across the protruded parts, which were firm and painfully sensitive to pressure.

The distance from a point opposite the vesical orifice to the meatus of the urethra along the vaginal surface was about three inches. There was no cystocele. A large No. 8 catheter, though much deflected downwards from the natural course, readily passed, although with great pain, and brought away only a few drops of urine from the bladder. The finger, introduced per vaginam, ascertained contraction of its canal, with a hard unyielding state of the vesico vaginal septum. The womb was anteverted, with its body pressing down upon the superior fundus of the bladder.

Another urethrocele, with ulceration of the bladder and enormous hypertrophy of its muscular coat, occurred in the case of a negro woman from Vaiden's depot, Mississippi, who entered my private infirmary in New Orleans, November 22, 1860.

CASE III.—Eliza McL., æt 40, black, tall, emaciated, ashen countenance characteristic of long suffering, in her sixteenth year had given birth to her first and only child, and had enjoyed good health up to now, '59. While voiding the urine, the stream was suddenly stopped with severe pain and straining, just after which relief was afforded by the passage of a "tough looking substance,"—probably a calculus. An aching in the urethra ensued, with urging to micturate, and scalding urine. This continued two months, with some abatement now and then, and was much influenced by vicissitudes of weather. In January, 1860, she came under the care of Drs. Wells and Davis of Gerrentown, Miss., who treated her palliatively, with teas and opiates. The urine, previously clear, now began to be turbid and slimy, and after standing a while, quite offensive. Every fifteen or twenty minutes she would pass a spoonful or two with painful urging and scalding, to which tenesmus was now added, the bearing down pains being constant. By the month of August they had all the apparent severity of labor pains, and the hypogastric region was sensitive to pressure. Enormous quantities of dark gray, thick, tough mucus were found in the urinal. She could only sleep a few minutes at a time, but her appetite remained fair and bowels regular. The mucous deposit gradually diminished, but at times it would be streaked with blood, and little fleshy looking particles be mixed with it at almost every effort to pass urine. On examination, I found urethrocele with constriction of the vagina above. The vesico vaginal



septum, instead of being prolapsed into a cystocele, as would naturally be supposed under the circumstances, made rather a firm resistance to the finger. The vaginal mucous membrane generally was congested, and much pain attended the introduction of the finger. The womb much anteverted, pressed down the superior fundus of the bladder.

It was somewhat enlarged throughout, and considerably indurated. The urethra was found to be elongated to more than twice its normal length, and excessively hypertrophied through its whole caliber and length, with consequent distortion of the canal beneath the pubic symphysis. The tumor thus formed, was broad and ill defined, firm, though yielding, and very painful under pressure. It could not be pushed up into the vagina. The surface was corrugated, deeply congested and slightly irritated by the urine, which, in passing, would run down upon it from the urethral orifice. A No. 8 elastic catheter passed readily into the bladder, after taking a long and deep curve beneath the triangular ligament. The pain attending this operation was excruciating, especially when the beak of the instrument touched the walls of the bladder, which seemed to be unyielding. Two teaspoonsful only of bloody urine were passed.

On collecting it repeatedly, it was found sometimes quite clear, although colorless flocculi and little fleshy looking particles floated in it when agitated, settling upon the bottom of the vessel when allowed to stand for a while. Some of these fleshy particles were half the size of the little finger nail, and could be recognized with the naked eye as disintegrated mucous membrane. It was difficult to estimate the quantity of this passed in twenty-four hours, perhaps half a teaspoonful, but more or less according to the violence of the expulsive pains. Very little blood was discharged, and only now and then the muco-pus deposit to any considerable amount. A fair specimen of urine showed the specific gravity 1018. It was sometimes alkaline, then acid, now and then neutral. No albumen appeared when it was tested both by heat and nitric acid.

#### ORDER OF MORBID CHANGES.

In the study of urethrocele, anatomical points to be considered are, the triangular ligament and its relations with the urethra; the muscular structure of the urethra, and the different relations of the urethra to the vagina in the upper and lower parts of its course.

These anatomical peculiarities exert a marked influence on the etiology of the lesions in question, and supply the first links in the long

chain of morbid results indicated by the histories of the cases above cited, and others known sometimes to follow.

In the male, stricture, although not the first morbid alteration, denotes the first serious interruption of the stream of urine, and superinduces morbid changes in the urethra above, the prostate gland, in the bladder, the ureters and the kidneys.

In the female, rare as it is to meet with organic stricture of the same kind as in the male, the caliber of the canal is quite as often, if not oftener, compromised, and with due allowance for the anatomical differences of sex, the pathologic sequences observe the same order.

The starting point of urethral and vesical lesions in the female is to be sought in the lower half of the urethra, closely related in front with the triangular ligament and blending behind with a spongy erectile tissue of the vagina.

The caliber of the urethra may be transiently narrowed by congestion of its mucous lining, or permanently narrowed by infiltration of coagulable lymph into the underlying cellulo-elastic tissue, which constitutes properly the so-called organic stricture, as in the male, and which, however seldom met with, is liable to the same sequences.

Infiltration into the spongy erectile tissue outside the urethra, by plastic lymph, is, I believe, by far the most common beginning of the morbid process, whatever be the cause that produces it. This interrupts the stream of urine, either by encroaching on the caliber of the urethra, or by deflecting it beneath the triangular ligament, both cases being attended with more or less dilatation above.

The next step in sequence, is increased functional activity of the urethral muscular coat in overcoming the obstruction to the flow of urine. The result upon its structure is hypertrophy, and this will be of the eccentric type, thickening the urethral walls, while enlarging the caliber. Hence, the ease with which large catheters of a proper curve pass at all stages of the disease. False and true hypertrophy here coexist. The true hypertrophy increases *pari passu* with the muscular contraction, and is followed by still greater distortion of the canal at an angle more and more acute, as it turns the triangular ligament and with corresponding contraction of its walls at that point. This mechanical impediment below, coincides with the increased weight and volume of the stream of urine above, to put the walls of the urethra on the stretch in the upper part of its course.

Thus is gradually formed the urinous tumor, which drags down in front the adjacent vaginal wall, appearing as a prolapsus between the nymphæ, and filling up the ostium vaginæ.



The looser attachment of the urethra to the vagina in the upper part of its course facilitates this result. Such is the condition of the parts to which I apply the term urethrocele. Often confounded with cystocele, it is really distinct.

The arrest and retention of but a few drops of urine at first, goes on until this may amount to a teaspoonful or more. It is then decomposed in this pocket, becomes alkaline, and by its irritation provokes congestion of the urethral mucous membrane. This congestion, extending to the vesicle trigone above, will bring white glairy mucus into the urine with vesical and rectal tenesmus. Causes favoring this extension are errors in diet, over-exertion, and excessive coition. Acute cystitis resulting, first complicates the urethrocele, and is more or less decided according to the gravity of its determining cause. After a few days the active congestion disappears or subsides, with the vesical symptoms, leaving the urethrocele persistent. A few days, or weeks, or months afterwards, similar provoking causes, even slighter than at first, will reproduce the congestion, while extending its area, with a corresponding increase of the severity of all the symptoms, as in our case No. 1. Finally, chronic cystitis overshadows the primitive urethrocele, although this still contributes to exacerbate the long and frightful train of evils.

The vesical mucous membrane seems to possess almost boundless susceptibilities of irritation, and the higher this ranges, or the greater the area congested by contact with ammoniacal urine, the more is the subjacent muscular coat excited to contractions of abnormal force and frequency. Hence hypertrophy, increased congestion, blindly seeking relief by increased mucous secretion, and more active fermentation of the urine, deposits of its ammoniacal magnesian phosphate, sometimes hemorrhage into the bladder, blood extravasated into the sub-mucous cellular tissue, or abscesses formed there.

This hypertrophy of the concentric type, although apparently slight in the mucous coat, is more serious in the muscular coat, whose efforts to overcome the urethral impediment and rid the bladder of its acrid contents, keep it growing until it reaches an inch or more in thickness. Autopsies reveal upon its inner surface fascicles of muscle like the interior of the right ventricle of the heart. Its color is deepened by the increase of venous blood in its retarded circulation, and its consistence softened by the same cause. The circular and spiral muscular fibres of the upper urethra are also hypertrophied, and overcome the former dilatation of the canal, thus converting the eccentric into concentric hypertrophy of the urethra, which has

become firmer to the touch, while its urinous tumor is less defined. This was the state of things in Case II. No autopsy was here allowed, but similar cases, less advanced — when I have opened the bladder — have afforded complete confirmation of these morbid changes.

From the earliest period of vesical hypertrophy, the congestion of the mucous membrane occasions thickening with an œdematous feeling in the *bas-fond*, and the contraction of its pliant walls under this irritation, is even greater than is possible after they have been straightened out and expanded by progressive thickening. The vesical cavity, moreover, is reduced by the pressure of the anteverted womb upon its superior fundus, which at this early stage gives it a somewhat cylindrical shape.

On the vagina, the effects of a hypertrophied bladder are seen in the increased firmness of the vesico-vaginal septum, and the congestion and hyperæsthesia of its mucous membrane.

Ulceration initiates the destructive stage of sub-acute inflammation or chronic catarrh of the bladder. It will be superinduced by the excessive hyperæmia of small or large patches of membrane, especially at the trigone and *bas-fond*, and by extravasations of blood into the submucous cellular tissue, caused probably by rupture of minute veins at the time of strong muscular contractions. In either event the mobility or pliability of the mucous membrane is lessened or destroyed by the inflammation which has reached its acme, and which now terminates in sloughing of the membrane, perhaps to a very limited extent, or by an abscess opening through it into the bladder. It is also to be considered that the mucous membrane rendered friable by previous inflammation, and thrown into irregular folds, may tear when it can no longer stretch under the powerful grasp of the hypertrophied muscular coat. This accident will occur the more readily on account of the anteverted position of the womb, which, I believe, always exists, and the pressure of which may explain the greater proneness to extensive ulceration of the female bladder, as averred by our morbid anatomists.

To whatever cause lesions of continuity in the mucous membrane may be due, urine immediately infiltrates the submucous areolar tissue where it undermines the borders of the lesion, and occasions their peripheric exfoliation. The bladder has lost in this way a fourth, a half, and even the whole of its mucous membrane when death had not sooner supervened. Three-fourths had been lost in case III, comprising the entrance points of both ureters up to the muscular coat.



A large aperture in the vesico-vaginal septum enabled me, by the aid of a reflected sunlight, to see nearly the whole interior of the bladder and observe the morbid process by a true vivisection. Upon the anterior wall, the remaining mucous membrane was much thickened, spongy and pulvaceous round its uneven and jagged borders, and of a dark red color, which generally faded into light cherry red, toward the center. The borders, as far as could be seen, were shelving, and the submucous tissue had that dirty grayish look which I have often seen in sloughy wounds of the vagina. The bladder contained but a spoonful or two of urine, mixed with mucus, and with the detritus of broken down tissue.

Little pieces of this membrane, such as the urine had previously contained, hung at many points just ready to drop off. The parts showed no tendency to bleed, although some of the shreds bore a deep red point on their edges, where they had been last attached, as I supposed. The muscular coat was laid completely bare as far as the morbid process had reached, but its fibres all seemed to be entire. No skill in dissection could have afforded a more perfect specimen. I was forcibly struck with its resemblance to the interior of the right ventricle of the heart, and it had the same velvety feel to the finger. The retiform fasciculation of its fibres rendered it slightly uneven. Its color was dark red, and its hypertrophy enormous; for this structure, and that of the vaginal wall when cut through, were three-fourths of an inch thick. Much black blood escaped from the former, but the arterial bleeding was very slight.

The vesical cavity was but little reduced in capacity, it was somewhat cordate in shape, and stood open smoothly all around. This was about fourteen months after the first symptoms were noted.

#### TREATMENT.

The resources of surgery alone are those which I propose to discuss, and first with regard to urethrocele: What are the indications for its radical cure, and by what means can we prevent the morbid action from reaching the bladder? How provide for the uninterrupted escape of urine from the urethra and place it at rest? Our surgical answer is, by tapping the urethra through the vagina at its most dependent point, on the same principle as cystotomy was first proposed by Mr. Guthrie for the relief of catarrh of the male bladder, afterwards practiced by Prof. Willard Parker, of New York, in 1850.\* The opening should be large, and prevented from closing in order to

\* Gross on the urinary organs, p. 293, 1855.

secure the most perfect drainage. This at once places the canal and its muscular surroundings at rest, both above and below the opening. Even should the bladder be implicated also in the early stage of cystitis, relief at the same time will be thus secured.

The result sooner or later, if the outlet be maintained, is the restoration of the hypertrophied urethra to its normal size and direction, since it is a well-established fact that a muscle thus affected, whether voluntary or involuntary, when placed at rest, returns to its normal size and function. The advantage of this little operation over another, to be presently described, for the relief of the bladder in its more serious complications, is that continence of urine is preserved, and its only inconvenience is the temporary escape of the urine from the mouth of the vagina.

How long should the artificial opening be maintained? We answer, until the cure is complete — from one month to five months, and even a longer time, since our object is to remove the hypertrophy, the cause of the distortion of the canal.

Will the artificial opening close of itself?

No; experience with the analogous cases of urethro-vaginal and vesico-vaginal fistules shows that urine is prejudicial to any closure in these parts, unless guarded against by the proper use of sutures. A second operation, therefore, for the restoration of the urethral canal will be required, and this does not differ from what is ordinarily required in a simple case of urethro-vaginal fistule, for which I should prefer my button suture. In case of redundant length, I should take this opportunity to retrench both the urethral canal and the vagina sufficiently to secure a nearly straight passage from one end to the other, and consequently, free vent to the urine. This operation I have never performed, nor am I aware that it has ever been done by any one else. I certainly consider it the most feasible procedure, and one entirely justifiable under the circumstances. The case above reported having been subjected to all known plans of treatment without relief, and now being upon the verge, I may say, of persistent vesical catarrh, is in my judgment a most suitable subject for the operation, which I expect to perform as soon as the patient can spare the time necessary.

A vesical catarrh that has resisted the ordinary therapeutics, and which threatens life itself, requires surgical intervention. The urethrocele has now advanced to its second stage, being in the upper part of its course, concentrically hypertrophied, as well as the muscular coat of the bladder, and its cure is no less important than that of

the bladder. The operation proposed for the former may overcome the interruption to the stream of urine in the urethra, but it does not cure the morbid state either of the urethra or of the bladder, which has now become the principal seat of disease. Although this may have been an effect of the primitive urethrocele, it cannot now be cured by removing that cause, on account of the insufficiency of the natural outlet of the bladder for the escape of morbid products constantly accumulating. To give them free vent, an aperture the size of half a dollar is made into the bladder through the vesico-vaginal septum just above the vesico-urethral orifice. When the patient is placed in the *knee-chest* position, and my self-retaining speculum introduced, the operation is done without an assistant, and with the greatest dispatch. A pointed knife with narrow blade, a curved scissors and delicate tenaculum suffice. First, pierce the septum at the point indicated; then cut right and left, at least half an inch each way. With the scissors the operation is easily completed, and then the extent of muscular hypertrophy may be ascertained, as well as the condition of the vesical mucous membrane. There will be considerable venous hemorrhage; but this helps to deplete the parts, and need give no concern. The after treatment consists in syringing out the vagina and bladder daily with tepid water.

Prompt relief is usually afforded by the operation, but should vesical tenesmus and bearing down continue, or recur from getting on the feet or from straining at stool, it is to be ascribed to the hyperæmia and consequent morbid sensitiveness of the mucous membrane. It is well in this case to brush over the surface of the membrane with a solution of Nitr. Arg.  $\overline{\text{ʒ}}$  j to  $\overline{\text{ʒ}}$  j, with a soft sponge every third or fourth day, while employing rectal suppositories of opium and belladonna. The caustic in solid form may be applied should the edges of the wound become unhealthy, or the seat of fungous granulations.

I have now such a case under my care, which I operated on three weeks ago. Tenesmus is induced by sitting up too long at a time, by vomiting, or straining at stool, and is generally relieved by the recumbent posture. The improvement of the bladder makes progress from day to day. The first indications of marked improvement in this case were the ascent of the womb from its anteverted and depressed position, the softening of the vesico-vaginal septum, and the diminished hyperæsthesia of the vaginal mucous membrane.

My present object is to improve the general health, while curing the diseased state of the urethra and bladder. Until these important ends are attained, closure of the artificial aperture is out of the question.



The urine dribbles away, it is true; this inconvenience is the price at which the benefit is purchased, and the patient herself will have no difficulty in deciding which is the least of the two evils. When her general health is restored to its wonted vigor, and all evidences of disease in the bladder and urethra have disappeared, then the question of closure will come up for consideration. Far better delay the operation a month or two after the cure is complete, than perform it one day before that event, for then there is always danger of the operation being lost, and of the final cure being proportionally delayed.\*

The operation for closure is the same as for vesico-vaginal fistule.

Had the plan of treatment here advised been adopted in case II., above detailed, I have no doubt that this poor woman might have been cured. I have often regretted that I did not open the bladder upon the spot. Sickness in my own family at the time, caused the delay, and the patient succumbed by exhaustion from her sufferings.

The treatment of ulcerated bladder differs from the last described only in requiring a larger opening, say about the size of a silver dollar, and which should remain longer open. A smaller opening will fail to secure relief. The great thickening of the parts promotes speedy closure with return of all the symptoms. No harm can result from cutting freely, and from giving free vent to all the morbid products of the bladder. When this is done, disintegration of the mucous membrane ceases almost immediately, and a healthy change in the remaining portion of it speedily occurs.

In Case III., the operation as precited, was performed in January 1861, and thus secured not only all its advantages, but the opportunity also of observing the disease in its anatomical characters, and of witnessing the cessation of its ravages.

The effect of my artificial passage upon the bladder as well as on the general health, was most decided. As soon as the operation was completed, the patient was put to bed and slept soundly twelve or fourteen hours, passing from her agony into an elysium of rest, and from this moment her improvement continued without interruption.

On the 15th of June, about five months after the bladder was first opened, the general health was so far restored, that after a careful examination of the urethra and bladder, I determined to effect the closure by my button suture. Now the hypertrophied condition of the urethra had subsided, and the sound revealed no abnormal sensi-

\* The author would state that the fistule in this case was closed with the button suture in October, and the patient remains perfectly cured. The fistule remained open about nine months. He regrets not being able to report the result of an operation in Case I, the patient not having applied yet for further treatment. January 22, 1872.

tiveness of the vesical cavity. The vesico-vaginal septum had diminished in thickness from three-quarters of an inch to one-quarter, and was no longer either hard or sensitive. The uterus was less anteverted. The operation was finished in a few minutes, and a catheter introduced into the bladder as usual. Everything progressed very well until the fourth day, excepting that there was a little more mucus in the urine than usual; but at this stage, she complained of an uneasy feeling in the urethra, which was soon followed by vesical tenesmus and straining, forcing out the catheter. Morphine was then given, but still the exacerbation continued, and on the 7th day, when I removed my suture apparatus, the edges of the opening which had not united at all, looked unhealthy.

Now, as soon as the aperture was thus re-established, the symptoms all abated, and after a few days the patient was as well as ever.

She was discharged July 19, with instructions to return home and remain there in the country until her general health was fully restored. This was done, and on February 22d, 1862, she returned for further treatment, with a happy face and looking quite robust. She declared she had not suffered the least pain or inconvenience from her bladder since she had left the infirmary, seven months before. Examination now showed the most satisfactory condition of the urethra and bladder. A few days after admission, I proceeded to close the remaining fistule in presence of my friend, Prof. Samuel Choppin, of New Orleans, and several other medical gentlemen. Now, as far as I could determine by a look into the bladder, the mucous membrane was restored and of healthy appearance, nothing unusual in thickness of the septum. Five interrupted sutures, secured by my button, sufficed to close the opening. Not an untoward symptom followed, and the patient left her bed the week after, with perfect control over her urine. She was discharged April 24th, cured.

Nearly nine years after this, I addressed, last December, a letter of inquiry to Dr. M. G. Davis, formerly of Gerrenton, and now of Greenwood, Miss., who had previously charge of the case, and received, January 18th, this reply:

"The woman, Eliza, I have had no interview with for several months, but previous to my leaving Gerrenton I saw her frequently, and talked with her regarding her disease and the operation you performed. She is entirely cured, and can do as heavy a day's work of washing, ironing or cooking, as any woman. She has perfectly recovered the voluntary power over her bladder, and a full collection of urine can take place before there is any urgent call to discharge it."

With regard to the reparation of the mucous membrane, it must suffice here to declare that it is reproduced, endowed with all its original functions, and having endured for nine years, as in this case, it is hardly doubtful that it will continue on to the natural end of life.

#### REMARKS.

Unusual interest attaches to the above case because of the clear diagnostic and complete cure of a disease, ulceration of the bladder, which pathologists have regarded as a very rare occurrence in either sex.

Louis found it but once in five hundred autopsies. Prof. Gross has met with it a few times, but of limited extent in the male bladder. In one case referred to as illustrative, the ulceration was "an inch in length by half an inch in width."

Dr. Budd, of London, and Mr. Coulson, as Dr. Gross states, have met with extensive ulcerations, such as I have described, in the female. In one case, "fifty-seven years of age," cited by the former, "the bladder was entirely denuded of mucous membrane, except a spot as large as a shilling on the posterior surface of the viscus, just behind the urethra, and at another, immediately round the orifice of the right ureter." There "the disease proved fatal at the end of the ninth month from the first appearance of vesical symptoms." Mr. Coulson's first case was "a French woman, who immediately after her delivery was attacked with all the symptoms of ulceration of this organ, and died within a week after." Here "the whole of the inner membrane of the bladder was found completely destroyed." In a second case observed by him, the disease commenced "a month after marriage," and "terminated a month after delivery," though the extent of the ulceration is not stated. It was remarked that "during the latter half of her pregnancy, her symptoms were much milder than before, but soon after the child was born, they returned with their accustomed severity and destroyed the person."

The history of Dr. Budd's case and mine appear to coincide, but both Mr. Coulson's cases, as I infer from the details of their termination, were instances of gangrene of the mucous coat, resulting from mechanical violence and paralysis. With regard to the mode of diagnosis, and the relief procured by it, my case stands alone. I am not aware at least that surgery records another instance of an ulcerated bladder being opened, illuminated, and inspected before death, and it is probable therefore that no such lesion of equal extent has been cured before or since. To Prof. Willard Parker is due the credit of



first opening the male bladder for relief of catarrh, and this encouraged me to extend the practice to the female bladder, as I have described. Dr. Emmet\* and other American surgeons have since adopted the practice in cases of vesical catarrh in the female, and I doubt not with equal success. Prof. Eve, of Nashville, Tenn., reported to Dr. Parker in January, 1866,† the result of the operation in a young man aged twenty-four, laboring under all the symptoms of stone, though none was found. The history of this case does not prove that catarrh of the bladder existed at the time of the operation, but the operation was urgently necessitated, and produced an excellent result, which serves to illustrate the value of the surgical resource in question, and its further application in practice.

Delay in the report of my case of ulceration was due to the suspension of all the medical journals in the south during the war, and now this report acquires a greater interest by my ability to state the actual condition of the patient, after a lapse of nine years since her cure by operation.

\* Vesico-Vaginal Fistula, 1868.

† Trans. N. Y. State Med. So., 1867.







